

## REMARKS

### 1. Amendment of Indpendent Claim 1

Claim 1 has been amended to better define the claimed invention. No new matter has been added with this amendment. Support for the amendments to claim 1 may be found in paragraphs [00058] and [00070] of the Specification.

### 2. Final Rejection of claims 1-5, and 8-21 under 35 U.S.C. §103(a) as obvious over Lahrmann et al., U.S. Patent 5,425,970, (hereafter "Lahrmann" or "970").

The rejection of claims 1-5 and 8-21 over Lahrmann has been maintained and made final. Applicants greatly appreciate the PTO's detailed remarks but must respectfully continue to disagree and submit that that the pending claims are nonobvious and patentable over the cited art.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

#### *MPEP 2143*

Lahrmann does not meet this standard. In particular, Lahrmann fails to (1.) disclose all of the limitations required by Applicants' amended independent claim 1 and (2.) provide any motivation to modify Lahrmann's disclosures so as to obtain Applicants' claimed invention.

#### A. LAHRMANN'S TEACHINGS.

Lahrmann teaches a process for the production of multi-coat lacquers that requires the use of two separate clearcoats. At least one of the clearcoats must be a heat-curable clearcoat while '...at least one *further* clear lacquer coat' must be applied that is a radiation-curable coating which is cured by UV radiation or electron beam radiation. See '970, *Abstract and claim 1*.

Thus, it is a required operational principle of Lahrman that two separate clearcoats be used, one that is heat cured and another that is cured with UV radiation or electron beam radiation. That is, Lahrman explicitly requires the use of two separate clearcoats, each of which clears by a distinct curing mechanism.

It is the PTO's position that Example 6 of the '970 patent teaches the use of a composition containing Applicants' components (a1) and (a3) and that it would be obvious to include a non-radiation curable binder containing isocyanate reactive groups because Example 6 uses a polyisocyanate.

The polyisocyanate in Example 6 is used only in the radiation curable clearcoat. The isocyanate groups react with hydroxyl functionality present on radiation curable components of the radiation curable clearcoat.

The PTO admits that Lahrman does not teach or suggest a ratio corresponding to "UV/TH" as required by Applicants' claim 1. However, it is the PTO's position that Lahrman's compositions would be expected to provide the UV/TH ratio required in claim 1 in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring. Alternatively, the PTO suggests that it would have been obvious to one of skill in the art to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product.

B. LAHRMANN FAILS TO DISCLOSE ALL OF THE LIMITATIONS REQUIRED IN APPLICANTS' CLAIM 1.

In particular, Lahrman fails to disclose or suggest a coating composition curable upon exposure to both ultraviolet (UV) radiation and thermal energy wherein the nonvolatile weight ratio of the sum of a radiation curable component (a1) and optional reactive diluent (a4) to the sum of a thermally curable binder component (a2) and thermally curable crosslinking component (a3) is the ultraviolet/thermal ratio (  $^{UV}_{TH}$  ) and is a value between 0.20 to 0.60.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974); *MPEP 1243.03* All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)

As admitted by the PTO, Lahrmann fails to satisfy this requirement. Reconsideration and removal of the rejection is respectfully requested.

C. LAHRMANN FAILS TO PROVIDE A MOTIVATION TO OBTAIN AN ULTRAVIOLET/THERMAL RATIO ( $UV/TH$ ) OF FROM 0.20 TO 0.60 WHEREIN ( $UV/TH$ ) IS THE NONVOLATILE WEIGHT RATIO OF THE SUM OF A RADIATION CURABLE BINDER (a1) AND OPTIONAL REACTIVE DILUENT (A4) TO THE SUM OF A THERMALLY CURABLE BINDER COMPONENT (A2) AND A THERMALLY CURABLE CROSSLINKING OCMPOONENT (A3)

Applicants greatly appreciate the PTO's detailed response in regards to this previously argued aspect of the rejection. However, Applicants must respectfully continue to disagree that

...the compositions disclosed would be expected to provide the UV/TH ratio set forth in the instant claims in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring.

(*Office Action of 6/25/03, page 4*)

or

...that it would have been obvious to one skilled in the art at the time of the invention to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product.

(*Office Action of 6/25/03, page 5*)

As a preliminary matter, Applicants note that the PTO appears to be shifting the burden of providing a *prima facie* case of obviousness to Applicants

by requiring evidence that Lahrman's compositions do not provide the UV/TH ratio set forth in Applicants' claim 1.

However, the mere allegation that the differences between the claimed subject matter and the prior art are obvious does not create a presumption of unpatentability which forces an applicant to prove conclusively that the Patent Office is wrong. *In re Soli*, 137 USPQ 797 (CCPA 1963) The Patent and Trademark Office has the burden of showing a *prima facie* case of obviousness. *In re Bell*, 26 U.S.P.Q.2nd 1529, 1530 (Fed. Cir. 1993)

The PTO's position appears to be that a *prima facie* case is provided "...because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring".

However, the disclosure of the same functional groups in Lahrman is not a disclosure of Applicants' required UV/TH ratio. Where the prior art gives no indication of which parameters are critical and no direction as to which of many possible choices is likely to be successful, the fact that the claimed combination falls within the scope of possible combinations taught therein does not render it unpatentably obvious. *In re O'Farrell*, 7 U.S.P.Q 1673 (CAFC 1988)

For example, nothing in Lahrman suggests balancing the amount of radiation curable components to solely thermally curable components so as to obtain a particular ratio. Indeed, thermally curable components are merely taught to be optional components as set forth in col. 6, line 67 of the '970 patent. Lahrman is also silent as to the need to have such thermally curable components be *solely* thermally curable, that is, substantially free of radiation curable functional groups. Finally, even if Lahrman did suggest such a balancing of radiation curable components to solely thermally curable components, nothing in Lahrman suggest a particular value of from 0.20 to 0.60 for the ratio of UV curable components to solely thermally curable components.

Thus, one of skill in the art reading Lahrman would have to make several 'guesses' or 'leaps' in order to obtain Applicants' claimed invention. It is respectfully submitted that such knowledge is obtained only with the prohibited

benefit of hindsight gained by Applicants' disclosures. The CAFC has stated "to imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. *W.L. Gore* 220 U.S.P.Q 303, 312-313. (Fed. Cir. 1983).

Thus, there does not appear to be anything for Applicants to refute in the absence of any such disclosure or suggestion by Lahrmann. Indeed, a review of Lahrmann's Example 6 indicates that it appears to lack any component equivalent to solely thermally curable component (a2) as required in Applicants' amended independent claim 1. All of the hydroxyl functional binders used in Example 6 appear to contain radiation curable functional groups. In order to submit evidence, Applicants would have to create 'phantom' prior art for the purposes of comparison.

As a result, it is respectfully submitted that the PTO has failed to provide a *prima facie* case of obviousness that has shifted the burden to Applicants. In the absence of a *prima facie* case of obviousness, Applicants do not have the burden of providing evidence.

Nor is a general desire to obtain a 'desired degree of crosslinking' sufficient to motivate one of skill in the art to do what Applicants have done. Certainly, in this regard Lahrmann does not teach anything other than that a radiation and optionally thermally linked crosslinked coating is desirable.

However, Applicants are not requiring a 'certain degree of crosslinking'. Rather, Applicants have discovered that it is the ratio of one type of crosslinking (i.e., radiation obtained crosslinks) to another (i.e., thermally obtained crosslinks) that is important. This aspect of Applicants' claimed invention is not suggested by a general desire to obtain a desired degree of crosslinking or by the crosslinked coatings disclosed in Lahrmann.

Accordingly, it is respectfully submitted that Lahrmann fails to provide a *prima facie* case of obviousness as to independent claim 1 and likewise to those

dependent claims that incorporate the limitations of claim 1. Reconsideration and removal of the rejection is respectfully requested.

3. **Final Rejection of claims 1-5, 8-14 and 18-21 under 35 U.S.C. §103(a) as obvious over Sirkoch et al., U.S. Patent 4,634,602, (hereafter "Sirkoch" or "602").**

Applicants appreciate the detailed basis of rejection but must respectfully continue to disagree with respect to amended independent claim 1.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

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Sirkoch does not provide a *prima facie* case of obviousness because it fails (1) to disclose the limitations required by Applicants' invention of amended independent claim 1 or (2) to provide any motivation to modify Sirkoch so as to obtain Applicants' claimed invention.

**A. SIRKOCH'S TEACHINGS**

Sirkoch discloses compositions having a radiation sensitive compound, a hydroxyl functional radiation insensitive compound, and a crosslinking agent reactive with the hydroxyl groups of the radiation insensitive compound.

Sirkoch does not require or suggest that the nonvolatile weight ratio of the sum of radiation curable component (a1) and optional reactive diluent (a4) to the sum of thermally curable binder component (a2) and thermally curable crosslinking component (a3) be from 0.20 to 0.60.

**B. SIRKOCH FAILS TO DISCLOSE ALL OF THE LIMITATIONS REQUIRED IN APPLICANTS' CLAIM 1.**

In particular, Sirkoch fails to disclose or suggest a coating composition curable upon exposure to both ultraviolet (UV) radiation and thermal energy wherein the nonvolatile weight ratio of the sum of a radiation curable component

(a1) and optional reactive diluent (a4) to the sum of a thermally curable binder component (a2) and thermally curable crosslinking component (a3) is the ultraviolet/thermal ratio ( $UV/TH$ ) and is a value between 0.20 to 0.60.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974); *MPEP 1243.03* All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)

As admitted by the PTO, Sirkoch fails to satisfy this requirement.

Reconsideration and removal of the rejection is respectfully requested.

C. SIRKOCH FAILS TO PROVIDE A MOTIVATION TO OBTAIN AN ULTRAVIOLET/THERMAL RATIO ( $UV/TH$ ) OF FROM 0.20 TO 0.60 WHEREIN ( $UV/TH$ ) IS THE NONVOLATILE WEIGHT RATIO OF THE SUM OF A RADIATION CURABLE BINDER (a1) AND OPTIONAL REACTIVE DILUENT (A4) TO THE SUM OF A THERMALLY CURABLE BINDER COMPONENT (A2) AND A THERMALLY CURABLE CROSSLINKING OCMPPONENT (A3)

Applicants greatly appreciate the PTO's detailed response in regards to this previously argued aspect of the rejection. However, Applicants must respectfully continue to disagree that

... the compositions disclosed [in Sirkoch] would be expected to provide the UV/TH ratio set forth in the instant claims in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring.

(*Office Action of 11/20/03, page 8 and Office Action of 6/25/03, pages 5 & 6*)

or

... [a]lternatively, it would be have been obvious to one skilled in the art at the time of the invention to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product.

(*Office Action of 11/20/03, page 8 and Office Action of 6/25/03, pages 5 & 6*)

As a preliminary matter, Applicants note that the PTO appears to be shifting the burden of providing a *prima facie* case of obviousness to Applicants by requiring evidence that Sirkoch's compositions do not provide the UV/TH ratio set forth in Applicants' claim 1.

However, the mere allegation that the differences between the claimed subject matter and the prior art are obvious does not create a presumption of unpatentability which forces an applicant to prove conclusively that the Patent Office is wrong. *In re Soli*, 137 USPQ 797 (CCPA 1963) The Patent and Trademark Office has the burden of showing a *prima facie* case of obviousness. *In re Bell*, 26 U.S.P.Q.2nd 1529, 1530 (Fed. Cir. 1993)

The PTO's position appears to be that a *prima facie* case is provided "...because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring".

However, the disclosure of the same functional groups in Sirkoch is not a disclosure of Applicants' required UV/TH ratio. Where the prior art gives no indication of which parameters are critical and no direction as to which of many possible choices is likely to be successful, the fact that the claimed combination falls within the scope of possible combinations taught therein does not render it unpatentably obvious. *In re O'Farrell*, 7 U.S.P.Q 1673 (CAFC 1988)

For example, nothing in Sirkoch suggests balancing the amount of radiation curable components to solely thermally curable components so as to obtain a particular ratio. Even if the teachings of a primary reference could be modified to arrive at the claimed subject matter, the modification is not obvious unless the prior art also suggests the *desirability* of such a modification. *In re Laskowski*, 10 U.S.P.Q.2d 1397, 1398 (Fed Cir. 1989).

Moreover, even if Sirkoch did suggest such a balancing of radiation curable components to solely thermally curable components, nothing in Sirkoch suggests a particular value of from 0.20 to 0.60 for the ratio of UV curable components to solely thermally curable components.

Thus, one of skill in the art reading Lahrman would have to make several 'guesses' or 'leaps' in order to obtain Applicants' claimed invention. It is respectfully submitted that such knowledge is obtained only with the prohibited benefit of hindsight gained by Applicants' disclosures. The CAFC has stated "to imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. *W.L. Gore* 220 U.S.P.Q 303, 312-313. (Fed. Cir. 1983).

As a result, it is respectfully submitted that the PTO has failed to provide a *prima facie* case of obviousness that has shifted the burden to Applicants. In the absence of a *prima facie* case of obviousness, Applicants do not have the burden of providing evidence.

Nor is a general desire to obtain a 'desired degree of crosslinking' sufficient to motivate one of skill in the art to do what Applicants have done. Certainly, in this regard Sirkoch does not teach anything other than that a radiation and optionally thermally linked crosslinked coating is desirable.

However, Applicants are not requiring a 'certain degree of crosslinking'. Rather, Applicants have discovered that it is the ratio of one type of crosslinking (i.e., radiation obtained crosslinks) to another (i.e., thermally obtained crosslinks) that is important. Applicants' claimed invention is predicated on an appreciation of the importance of this ratio and its affects on the performance of the coating. That is, the prior art has failed to recognize that the failure to control this ratio brings undesirable performance properties. This aspect of Applicants' claimed invention is not suggested by a general desire to obtain a desired degree of crosslinking or by the crosslinked coatings disclosed in Sirkoch.

Finally, a reference that performs a step of a claimed process for a different purpose and does not recognize the problem solved in applicants' process does not render the process obvious. *Ex parte Wisdom et al.*, 184 U.S.P.Q. 822 (POBA 1973) Of course, this case is distinguishable from *Wisdom* because in this case, Sirkoch does not do or suggest what Applicants have done,

i.e., regulate and control the amount of radiation curable components relative to the thermally curable components in a particular range, for any purpose.

Sirkoch is thus silent as to any need to control the  $UV/TH$  ratio. Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention." *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546, 48 USPQ2d 1321, 1329 (Fed. Cir. 1998). There must be a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine them as combined by the inventor. See *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665, 57 USPQ2d 1161, 1167 (Fed. Cir. 2000); *ATD Corp.*, 159 F.3d at 546, 48 USPQ2d at 1329;

Accordingly, reconsideration and removal of the rejection is respectfully requested with respect to amended claim 1 and the dependent claims incorporating the limitations of claim 1.

**4. Rejection of claims 1-5, 8-14, and 18-21 under 35 U.S.C. §103(a) as obvious over DE 99 141, (hereafter "144").**

DE '144 is said to disclose compositions for SMC and BMC coatings that comprise a component (a1) corresponding to Applicants' component (a1), a component (a2) corresponding to Applicants' component (a3), and a component (a7) corresponding to Applicants' component (a2).

The PTO admits that DE '144 does not disclose or teach the required ratio of isocyanate groups to isocyanate reactive functional groups.

However, it is the PTO's position that

... the compositions disclosed would be expected to provide the UV/TH ratio set forth in the instant claims in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring. Alternatively, it would have been obvious to one skilled in the art at the time of the invention to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product.

(Office Action of 11/20/02, page 10)

Applicants appreciate the detailed basis of rejection but must respectfully disagree.

As previously noted, the statement that something is well known or obvious in the art does not supply the motivation necessary for a *prima facie* case of obviousness. Most importantly, Applicants' claimed invention involves more than mere optimization. Rather, as noted above, it involves the recognition that the amount of radiation curable components must be particularly balanced against the total amount of all thermally curable components and that the ratio of these type kinds of components must be between 0.20 to 0.60.

In contrast, DE '144 teaches only that the ratio of the isocyanate reactive groups (a12) to the isocyanate groups (a22) that should be considered. DE '144 is thus silent as to any need to control the ratio of radiation curable components to the thermally curable components.

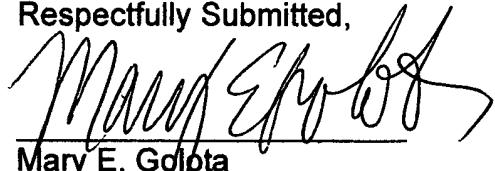
Thus, DE '144 leads one of skill in the art away from the recognition that the total amount of radiation curable components must be particularly balanced against the total amount of thermally curable components in a dual cure coating.

A reference that leads one of skill in the art away from the claimed invention cannot provide a *prima facie* case of obviousness. For example, the Federal Circuit has clearly stated that "each prior art reference must be evaluated as an entirety, and ...all of the prior art must be evaluated as a whole". *In re Fritch*, 23 USPQ2d 1780, 1782. (Fed. Cir. 1992).

An evaluation of DE '144 indicates that it does not motivate one of skill in the art to do what Applicants have done. As such, it fails to provide a *prima facie* case of obviousness per MPEP 2143.

Accordingly, reconsideration and removal of the rejection is respectfully requested with respect to amended claim 1 and the dependent claims incorporating the limitations of claim 1.

Respectfully Submitted,



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